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scottish hospital centre
INFORMATION SHEET

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combined first stage and delivery room

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Introduction

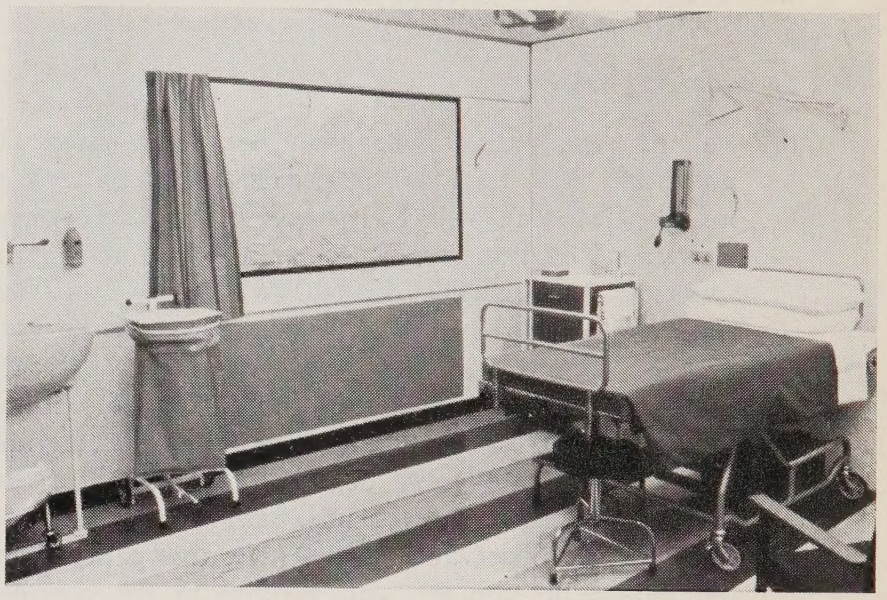
This information sheet presents design and layout recommendations for a combined first stage and delivery room, a number of which would be provided, together with supporting accommodation, in the labour suite of the maternity department of a District General Hospital. The policy of having such rooms was adopted by the Scottish Home and Health Department following a design-in-use study carried out as part of the development of guide material for the planning of maternity departments. A fully effective combined first stage and delivery room depends upon the integration of a mass of practical details; the following recommendations result from studies of function and design in existing hospitals and from "mocked-up" simulations built and evaluated at the Scottish Hospital Centre.

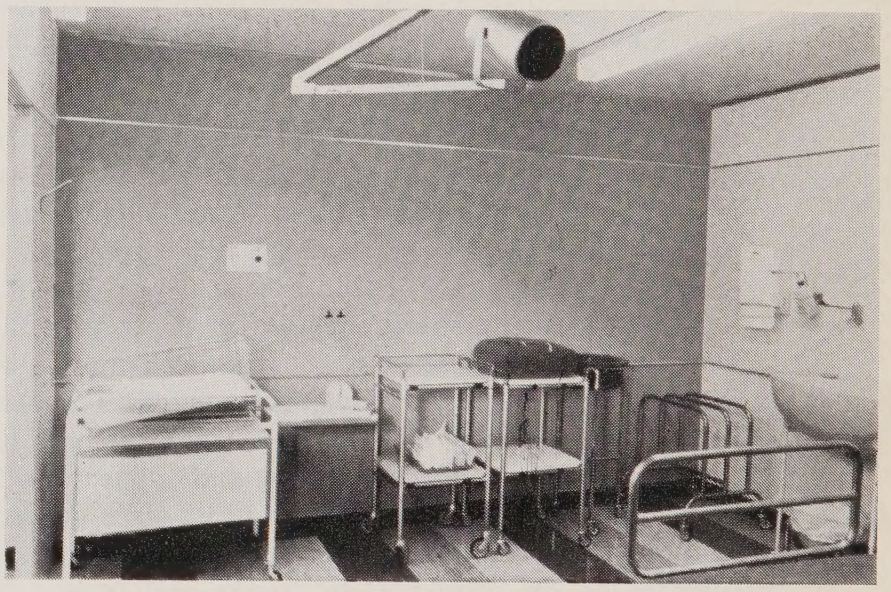
The policy referred to envisages that deliveries would take place in combined first stage and delivery rooms, where patients would remain throughout all the stages of labour. Upon the completion of an appropriate recovery period the patient would normally proceed direct to the post-natal ward. In this way the problem of moving the patient at the end of the first stage of labour is avoided. Each room would be for the sole use of an individual patient and would with advantage be of a standard size, shape and layout. One combined first stage and delivery room would be provided for every five post-natal beds.

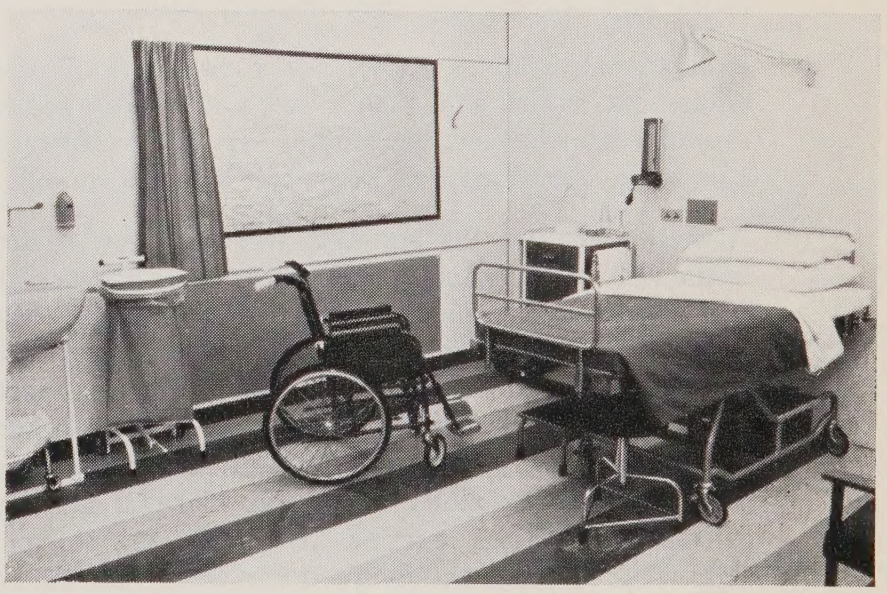
In addition to the combined first stage and delivery rooms there would be provided within the labour suite itself a day-room, sanitary facilities for patients, an equipment room, doctor's and sister's rooms, a midwives' station and the nurse working rooms (preparation, disposal, sluice and pantry).

Outwith the labour suite but immediately adjacent to it there would normally be an admission suite; two operating theatres with full supporting facilities and an intensive nursing care area would directly relate to this. Facilities for neonatal resuscitation would be provided in the special care nursery (if convenient) or within the labour suite itself.

In the present study, the room size suggested is based on surveys of seven maternity hospitals in Scotland, some of which included detailed recordings of patterns of patient and staff activity, and its detailed planning follows exhaustive discussion between members of the study team and representative designers and users. It is recognised that practice varies from one unit to another; the design proposed in this information sheet permits differing patterns of use according to individual hospital policy.







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Factors Affecting Design

The size and shape of the combined first stage and delivery room are determined by the number of people using the room at any one time, the activities performed therein and the amount of equipment employed. Therefore it must provide:

(1) Space for people and equipment in the conduct of a spontaneous delivery.

(2) Space for people and equipment for a delivery in the lithotomy position.

(3) The services and supplies essential for the care and treatment of mother and child.

(4) An environment conducive to the physical and mental well-being of the woman in labour.

(1) *Spontaneous Deliveries (Plans A, C)*:

(a) Patient: the patient will enter the room from the admission suite on foot, by wheelchair or by trolley; no transfer area will be provided. Any subsequent movement or transfer of the patient will be on the obstetric bed or on a trolley. Within reach of the patient are a bed-head light, which can also be used as a night-light (13), a patient-to-nurse call bell (19) and a locker or storage unit which, besides carrying beverages, will also contain the patient's clothing and personal effects (7). A degree of privacy for the patient is assured by curtains both for the window (11) and the observation panel (21); this panel keeps the patient in contact with activity in the corridor outside the room and permits easy observation by the staff of mother and child. It will be noted from the drawing that a sliding door (10) is provided; this is convenient to use and does not infringe upon the space within the room.

(b) Staff: the maximum number of staff present at a spontaneous delivery varies widely from one hospital to another, but there are sound bacteriological and psychological reasons for keeping this number to a minimum. In this case, space has been provided for six persons, three actively engaged in the care of the patient and three observing. It is assumed that viewing facilities for greater numbers would be available within the operating theatre suite. Staff who will be performing the delivery, visitors and students will have changed before entering the room since general facilities for changing will be provided at the entrance to the labour suite; masks and caps only will be available from containers immediately outside the room. Nobody should be allowed into the room who is suffering from obvious septic lesions.

(c) Equipment: Plan A shows the room with all the equipment stored and Plan C with it set out for a spontaneous delivery. Appendix 1 is an Equipment List for a combined first stage and delivery room.

(d) Activities: before the delivery, staff scrub-up at the basin (2), which is equipped with two elbow-action taps and a thermostatically controlled water supply and which is large enough to allow two to scrub at the same time, whilst keeping the presenting part of the patient in view. The trolleys (4, 5) and other equipment, with appropriate pre-sterilised packs, are placed in the positions shown on Plan C. During delivery, the staff occupy the positions shown. Following delivery, the infant is identified, handed to a nurse, who then moves to the cot (3), positioned beside the door, where there is also room for a resuscitation trolley, outwith the direct view of the mother. During the first stage of labour the husband may have been sitting in the chair beside the bed (9).

(2) *Deliveries in the Lithotomy Position (Plan D)*:

(a) Patient: the same comments will apply as for a spontaneous delivery.

(b) Staff: for a low forceps delivery or obstetric emergency the staff may be augmented by obstetric, anaesthetic and possibly paediatric teams.

(c) Equipment: In addition to the normal equipment, a 30″ x 18″ trolley (22) will be required, for the infant a resuscitator (23), a stool for the anaesthetist (25) and possibly a Boyles Machine (24). (See again the Equipment List, Appendix 1.)

(d) Activities: the bed is pulled away from the back wall, shortened, the bed ends are removed and lithotomy and possibly drip poles are erected. It should be noted that, although the space and facilities are available, procedures requiring a general anaesthetic would not routinely be performed within the room. In view of this, and the diminishing use of explosive gases in obstetrics, anti-static precautions should not be necessary. For neo-natal resuscitation, initial stimulation of the baby will be carried out within the room and space is available for a resuscitator (23). Active resuscitation, however, would in most cases take place outside the room, either in a special resuscitation room with suitable environmental conditions or, if more convenient, within the special baby-care unit. From Plan D it will be seen that adequate space for manoeuvre remains in the room even when a general anaesthetic is being administered.

(3) *Services and Supplies*:

(a) Storage: in the design of this room, the principle of standard procedure packs for mother and child has been accepted and it is assumed that trolleys will be used instead of shelves for these packs; all other nursing equipment will be available from a central preparation room. Equipment for treatment will be contained in pre-sterilised packs on two 18″ x 18″ trolleys (4, 5) and one single bowl stand (6). Equipment for patient assessment will be placed on the writing shelves to either side of the bed (7, 8). The sphygmomanometer is wall-mounted, but can be turned for ease of reading from either side of the bed (14). The foetal and aural stethoscopes can be placed on the shelves, but the clinical thermometer will be brought in with each new admission. Fluids, paper tissues, emesis bowls and denture cups will be kept on the bedside locker or storage unit (7), accessible to both patient and nursing staff. It is assumed that the patient's personal clothing, outdoor and outer, will be sent home upon the patient's admission. Those articles retained in hospital might be placed in a rigid container, which can be kept inside the storage unit. Such a container would be accessible to the patient and easily transferred to the post-natal wards.

(b) Disposal: systems vary from hospital to hospital, but facilities will be required for three principal categories of material: soiled and/or foul linen, unused and returnable sterile supplies and refuse for destruction.

(c) Electrical: two twin-socket outlets are required for the mother, one either side of the bed (15), to ensure that any emergency and monitoring equipment, additional heating, etc., can be supplied without trailing cables. For the child, one twin-socket outlet is needed adjacent to the cot position (16). Sparkless socket outlets are not required, but the possible dangers of overloading or misuse of electrical apparatus should be recognised. All socket outlets should be connected to an emergency supply.

(d) Gases: separate oxygen and suction outlets are provided for both mother and child. Those for the mother are sited on her left at the head of the bed, convenient for the anaesthetist (17) and for the child on the opposite wall near the cot (18), thereby giving independent accessibility. Suction for the infant must be at a controlled level.

(e) Cleaning and Maintenance: efficient cleaning of the room and its equipment is essential. In particular, it is recommended that walls be washed at weekly intervals (and they should therefore have a durable, easily cleaned and impervious finish) and furniture and equipment following each delivery. When curtains are fitted, they should be washable (cotton) and changed at weekly intervals. Floor finishes should be impervious and have coved edges to assist cleaning. It is clearly important that all equipment used in this room be properly checked and serviced at regular intervals.

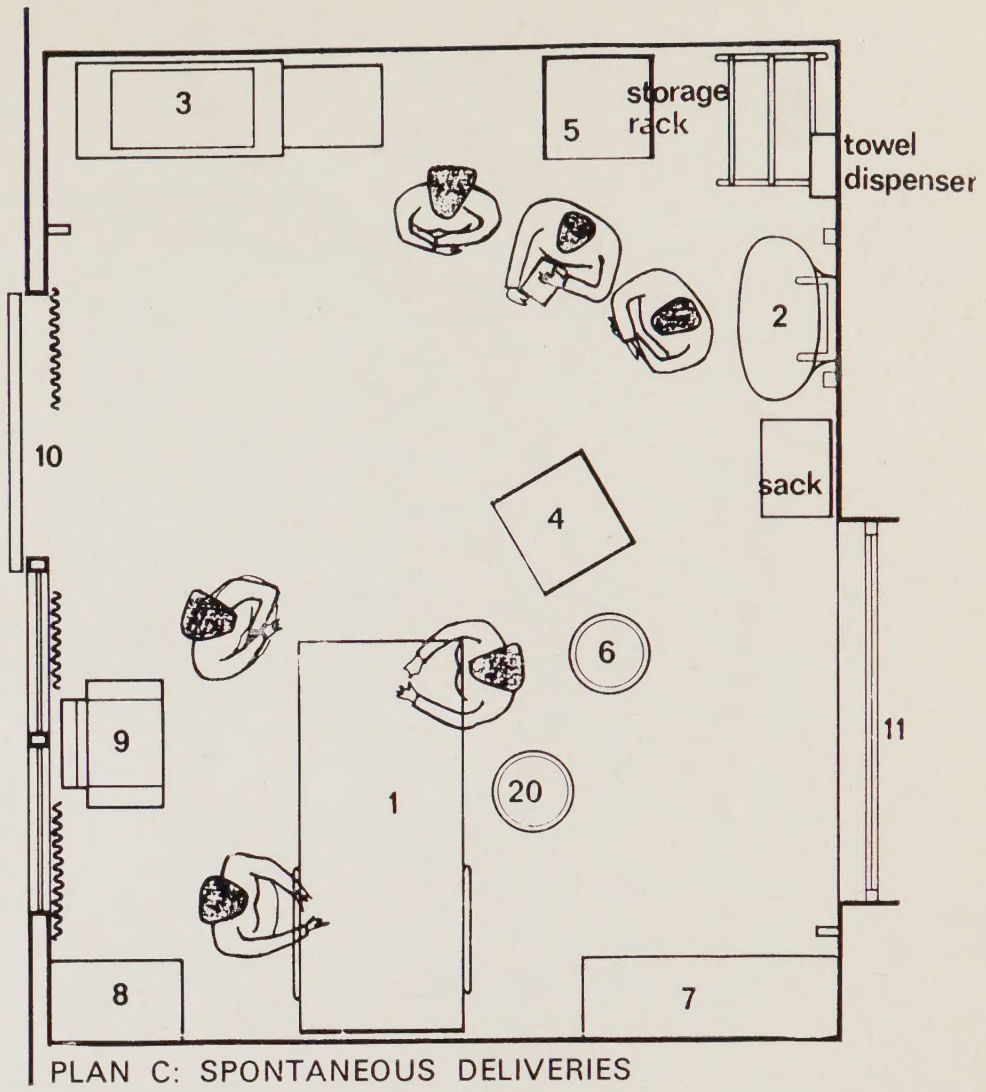
(4) *Physical Environment*:

(a) Lighting: natural lighting from a normal, domestic-type window is desirable within the room (11); this will both reassure the patient and enable her to see the world outside, but at the same time care should be taken to prevent overlooking. General artificial lighting should be designed to give an illumination level of 20 lumens/sq. ft. (215 lux) and an adjustable over-bed light, which can also function as a night-light, should be provided (13). A ceiling-mounted spotlight for surgical procedures is essential (12). All lighting, except the over-bed light, should be connected to an emergency supply.

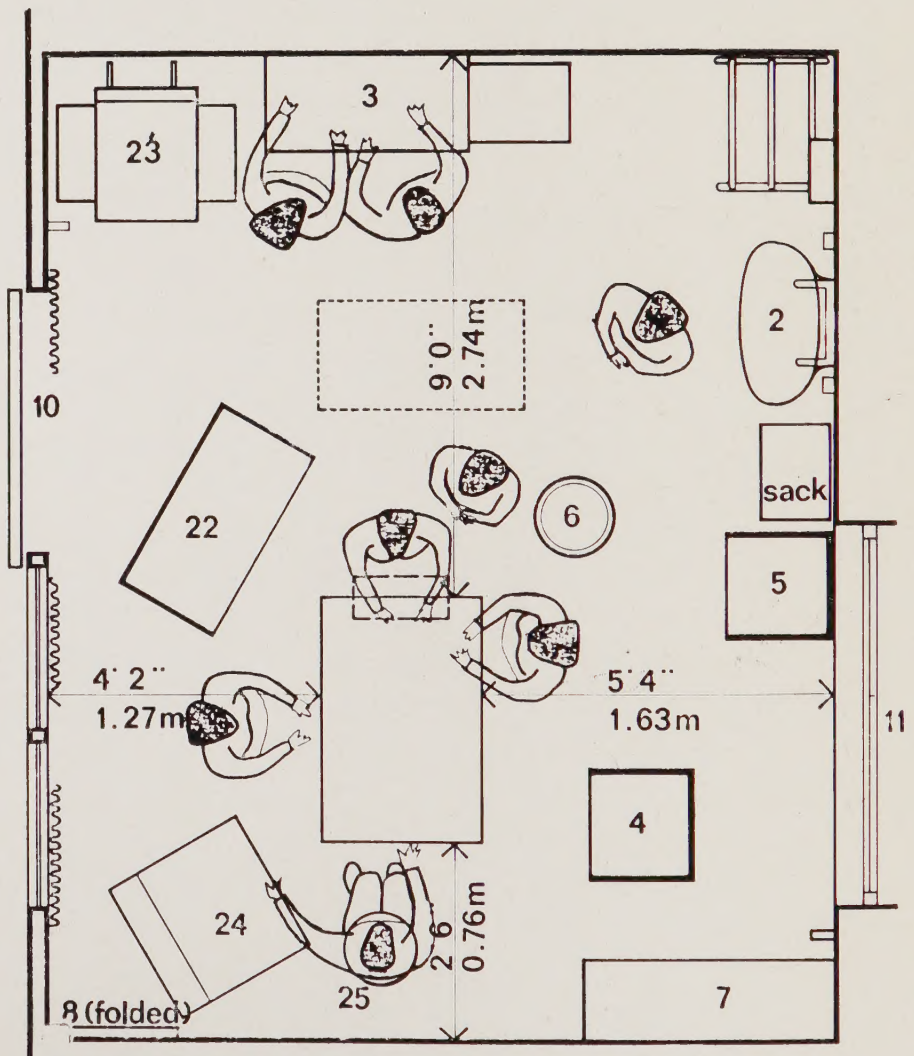
(b) Heating and Ventilation: the room will normally be heated from the hospital's central heating system, to maintain an ambient temperature of 70° F (21° C). It is important that the system chosen should not encroach upon the floor area, which may mean abandoning the conventional hot water radiator system in favour of a radiant panel type. The ventilation system need not be mechanical, provided a supply of clean fresh air is maintained at the rate of six air changes per hour. Design should take account of possible excessive solar heat gains on some orientations of the building.

(c) Noise: it is important to ensure reasonable visual and auditory privacy within the room by suitable planning and partitioning, since patients may be distressed on hearing their more excited and voluble neighbours.

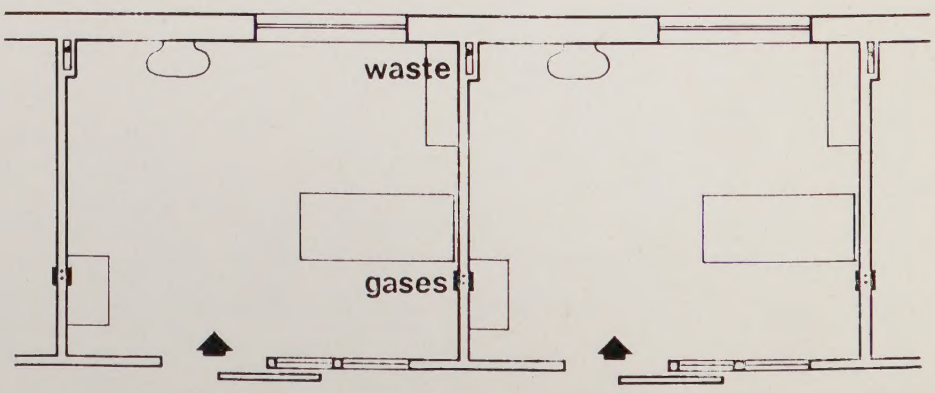
(d) Appearance: little disturbance is caused to patients by the clinical appearance of the equipment in the room. Much can be done, however, to give the room a more domestic character by the use of curtains and wall decorations which, whilst consistent with efficient function, will be wholly welcomed by the patient.



PLAN C: SPONTANEOUS DELIVERIES

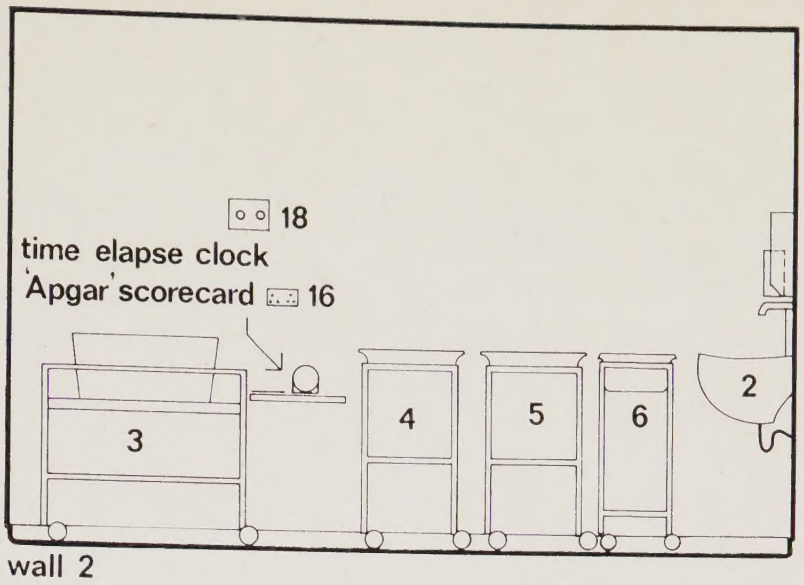


PLAN D: DELIVERIES IN THE LITHOTOMY POSITION

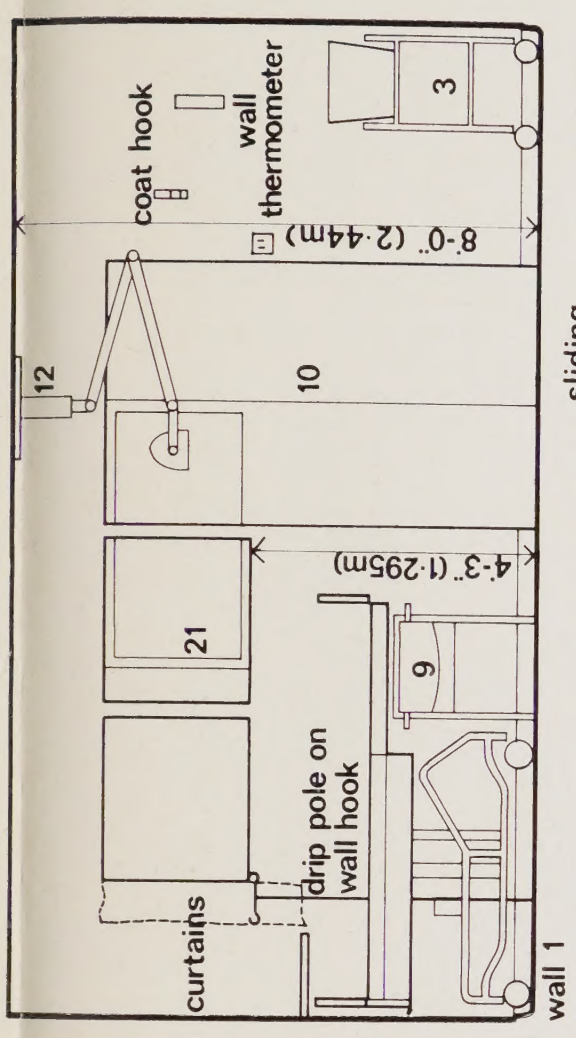


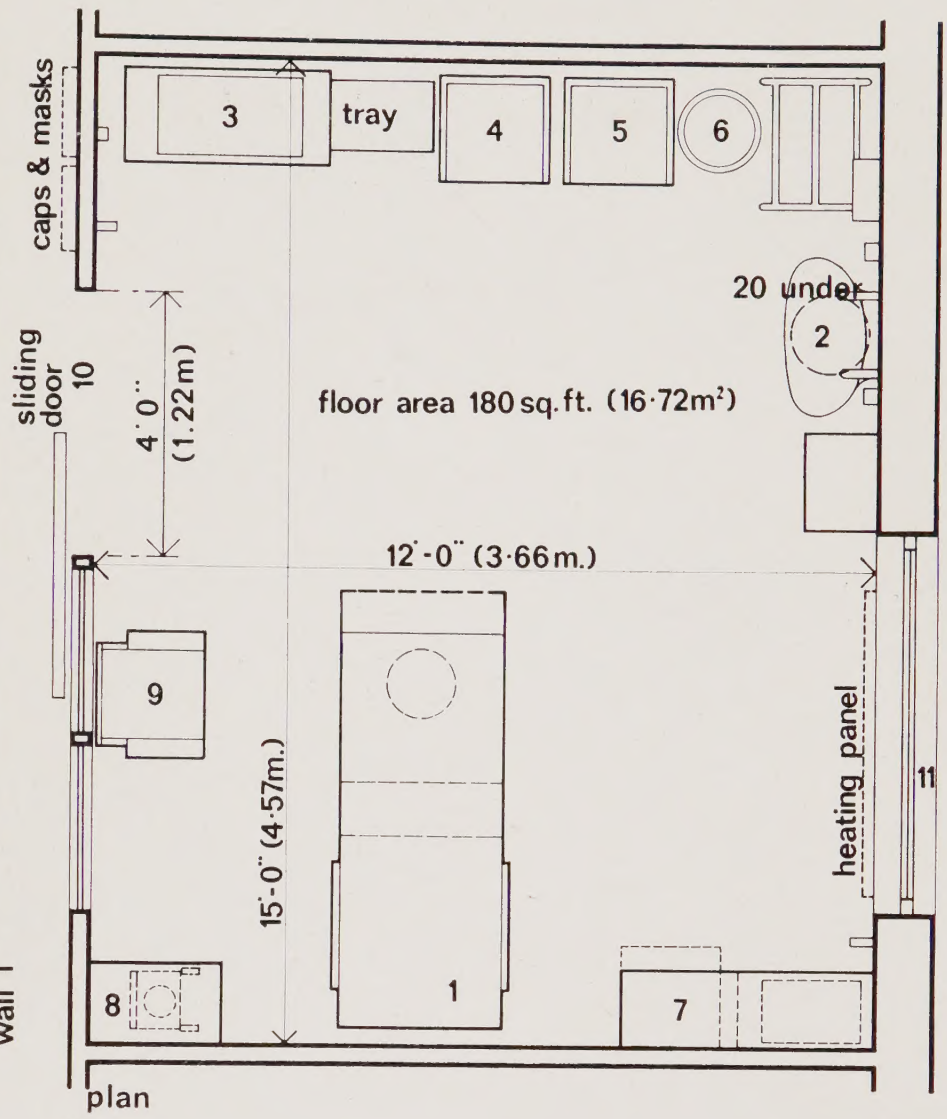
PLAN E: linking of several rooms showing main entrances

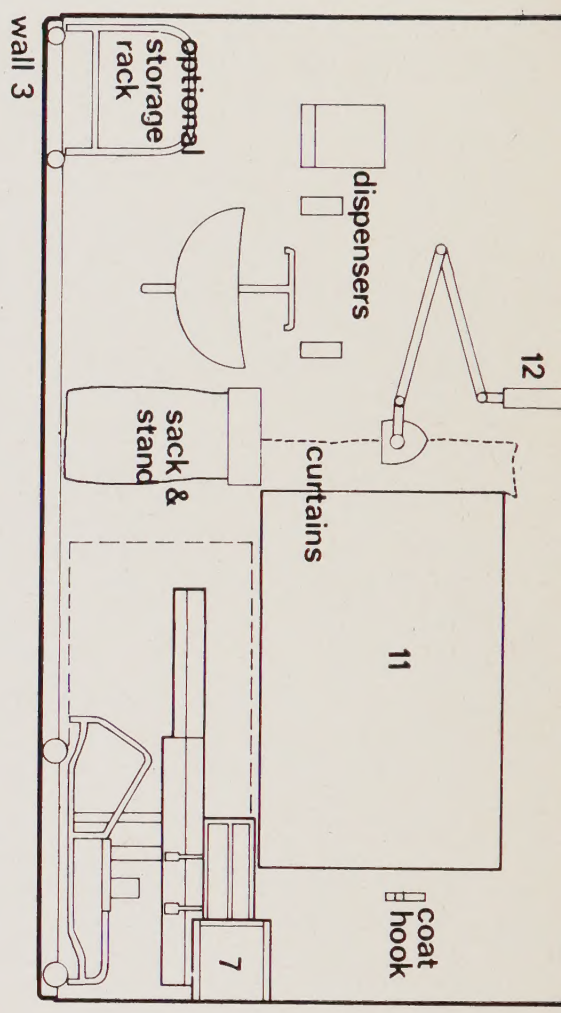
1. Obstetric bed.
2. Scrub-up basin.
3. Baby cot.
4. 18″ x 18″ trolley.
5. 18″ x 18″ trolley.
6. Single-bowl stand.



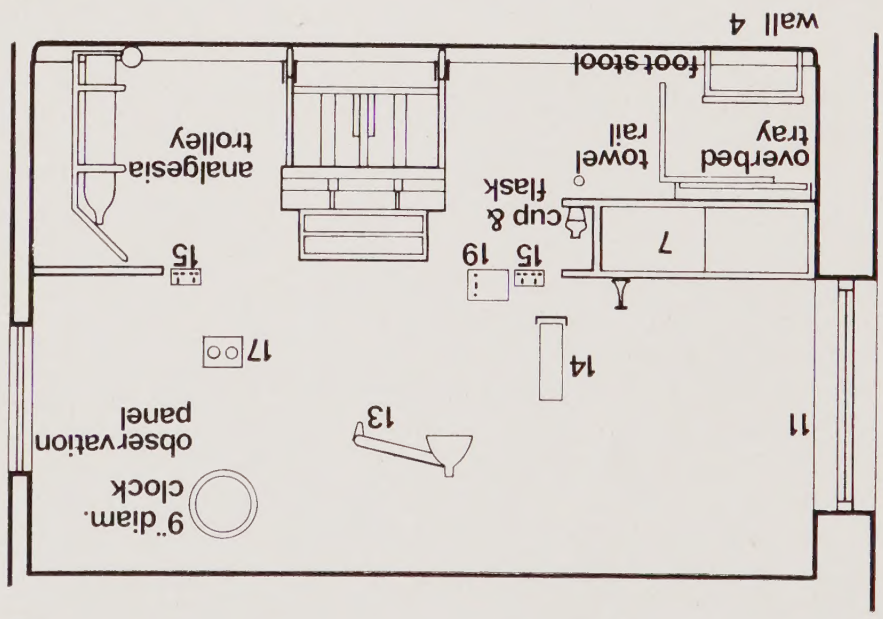
7. Bedside locker and shelf (as or storage unit incorporatir shelf.
8. Fold-down writing shelf.
9. Chair.
10. Sliding door.
11. Window.
12. Spotlight.







3. Over-bed light.
4. Sphygmomanometer.
5. Twin-socket outlets for mother.
6. Twin-socket outlets for child.
7. Oxygen/suction outlets for mother.
8. Oxygen/suction outlets for child.



19. Bedhead services panel.
20. Kickabout.
21. Observation panels.
22. 30″ x 18″ trolley (Plan D).
23. Resuscitator (Plan D).
24. Boyles machine (Plan D).

A

COMBINED FIRST STAGE AND DELIVERY ROOM

Scale : (Plans A, C. D): 1 : 50
Approx. imp. equiv.: $\frac{1}{4}'' = 1'\,0''$

APPENDIX 1: Equipment List

Group 1

Wash-hand basin with twin-outlet, thermostatically controlled, elbow-action taps.
Electric clock, with 9″ dial and sweep second hand.
Time elapse clock.
2 No. writing shelves.
Over-bed/night-light.
Patient-to-nurse call system.
Nurse-to-nurse call bell.
Ceiling-mounted spotlight for surgical procedures.
Piped oxygen/suction: two separate outlets, one each for mother and child.
Socket outlets: two, twin-outlets for the mother.
one, twin-outlet for the child.

Group 2(*a*)

Paper towel dispenser.
Wall fitting for suction bottle.
Hooks for: doctor's coat, wall thermometer, patient's dressing-gown.

Group 2(*b*)

Elliot/Steel's or similar obstetric bed, including bed sides and disposal bin.
Stand for lower section of Steel's bed and bed ends (or other provision).
Bed step.
Disposal sack for paper towels.
Kickabout.
Bedside locker or storage unit.
Stool for anaesthetist.
Chair.
Baby cot.
Analgesia machine (Entonox, Trilene).
Single-bowl stand.
Trolleys: 2 No. 18″ x 18″, 2′ 10″ high, $2\frac{1}{2}$″ castors.

Group 3

Sphygmomanometer: wall-mounted.
Stethoscopes: foetal and aural.
Clinical thermometer with holder.
Emesis basin (disposable).
Rigid container for patient's clothes.
2 No. chart holders.
Oxygen masks (disposable).
Suction catheters (disposable).
Aprons (disposable), etc.

Emergency Equipment (*available as required*)

Boyles anaesthetic machine.
Continuous suction apparatus.
Incubator.
Resuscitator.
Large trolley: 1 No. 30″ x 18″, 2′ 10″ high, $2\frac{1}{2}$″ castors.
Resuscitation equipment (maternal).
Mobile lamp.

On Admission

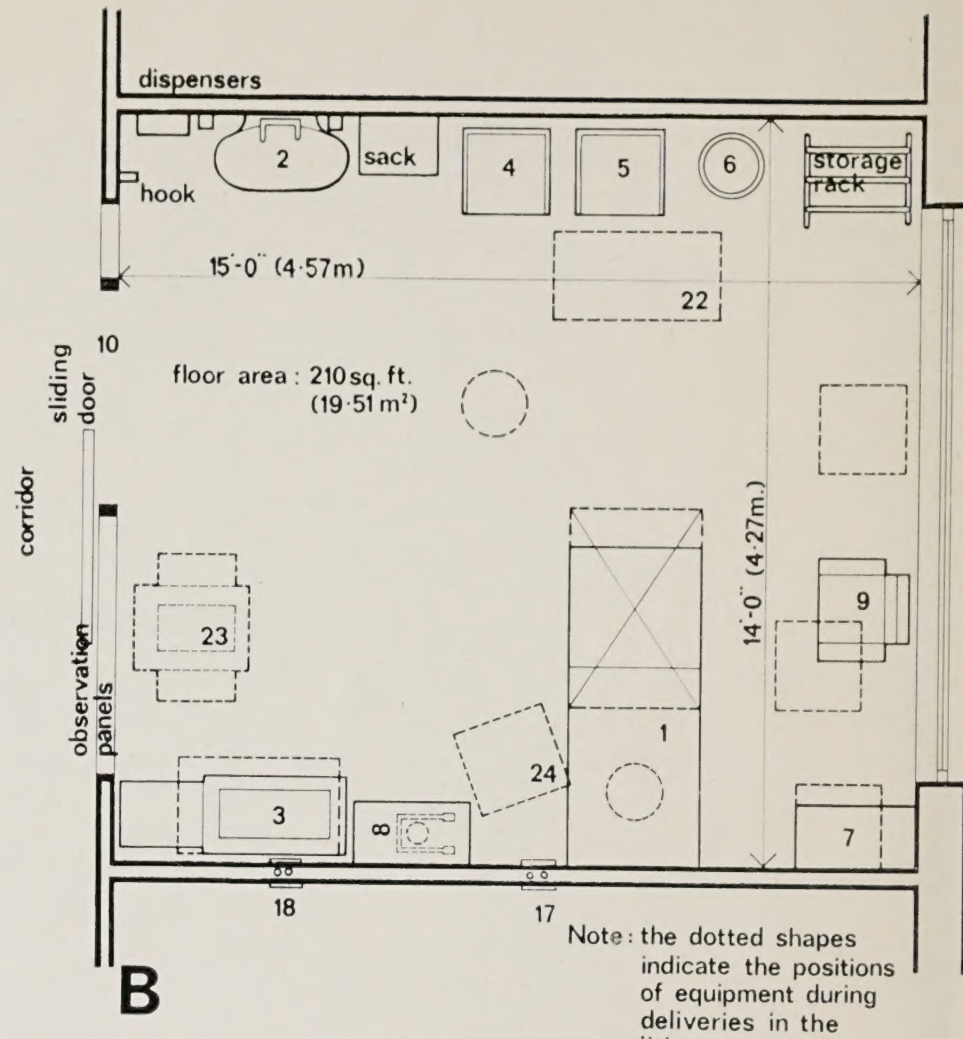
Wheelchair.
Patient transfer trolley.

Outside Room but Immediately Adjacent

Mask (disposable) dispenser.
Caps (disposable) dispenser.
Receptacle for used masks and caps.

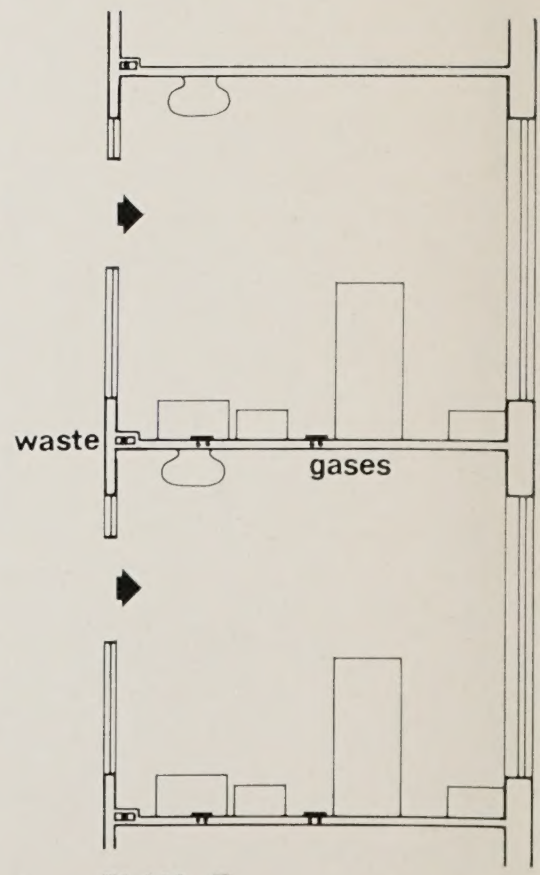
Required According to Individual Hospital Policy

Weighing machine (baby).
Baby bathing equipment.
Fluid warming cabinet.



B

Plans B and F illustrate an alternative layou for the room in which, by bringing both scrub-up and child-care areas to the corrido side, a narrower frontage and slightly more economic distribution of services can be achieved — although at the expense of a greater overall area. It will be noticed that the essential functional relationships are maintained between bed, scrub-basin and cot although observation of the mother may be more difficult as she is further from the door.



PLAN F

APPENDIX 2: Bibliography

American Hospital Association. *Infection control in the hospital.* Chicago, A.H.A., 1968.

Barrie, Herbert. Resuscitation of the newborn. *Lancet,* **1,** March 23, 1963, p. 650-655.

Cartwright, Ann. *Human relations and hospital care.* London, Routledge, 1964.

Cohen, Gerda L. *What's wrong with hospitals?* Harmondsworth, Middlesex, Penguin, 1964.

Department of Health for Scotland. Scottish Health Services Council. *Maternity services in Scotland: report of a committee appointed by the Council. (Chairman: G. L. Montgomery.)* Edinburgh, H.M.S.O., 1959.

Kuck, Marjorie A. Trends in design of maternity units. *Nursing Mirror,* **122,** May 6, 1966, p. iv-vi; May 13, 1966, p. xiii-xv.

Ministry of Health. *Anaesthetic explosions including safety code for equipment and installations: report of a working party.* London, H.M.S.O., 1956.

Ministry of Health. *Maternity department.* London, H.M.S.O., 1966. (Hospital building note, 21.)

Ministry of Health. *Operating department.* London, H.M.S.O., 1967. (Hospital building note, 26.)

Ministry of Health *and* Scottish Home and Health Department. *Maternity department.* London, H.M.S.O., 1964. (Hospital equipment note, 21.)

Ministry of Housing and Local Government. *Space in the home.* London, H.M.S.O., 1963. (Design bulletin, 6.)

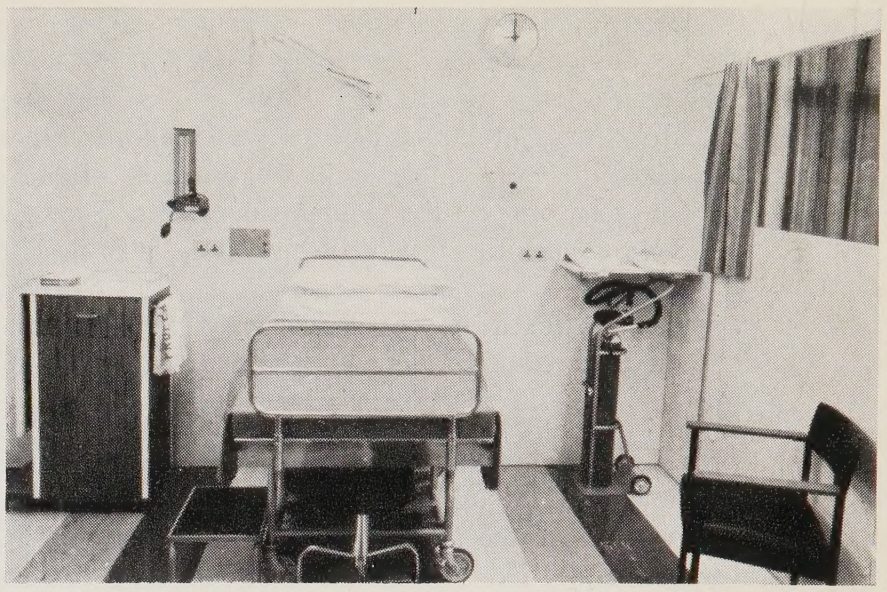
Myles, Margaret Fraser. *A textbook for midwives; 5th edition.* Edinburgh, Livingstone, 1964.

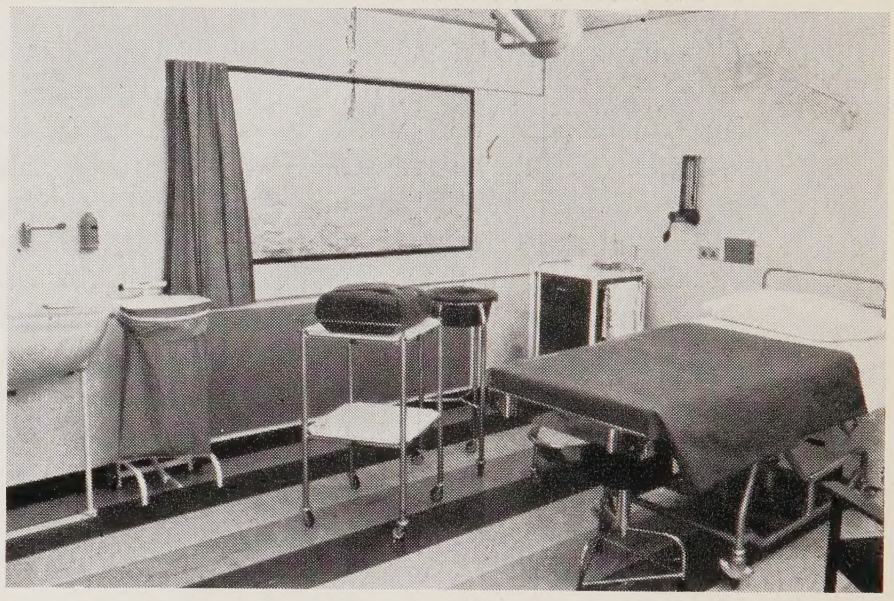
Norris, Walter *and* Campbell, Donald. *A nurse's guide to anaesthetics, resuscitation and intensive care; 3rd edition.* Edinburgh, Livingstone, 1967.

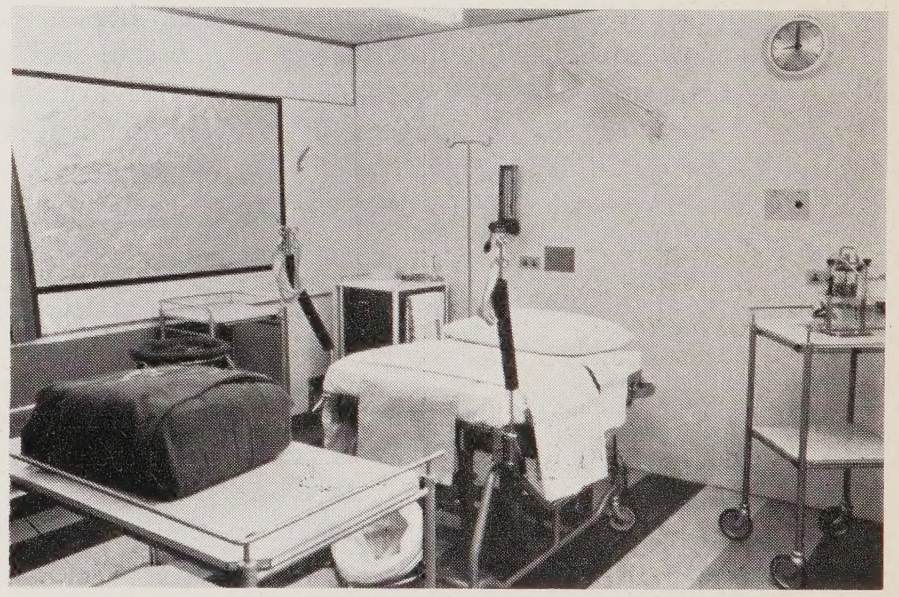
Oxford Regional Hospital Board. Operational research unit. *Computer simulation of a maternity hospital.* Oxford, R.H.B., 1964.

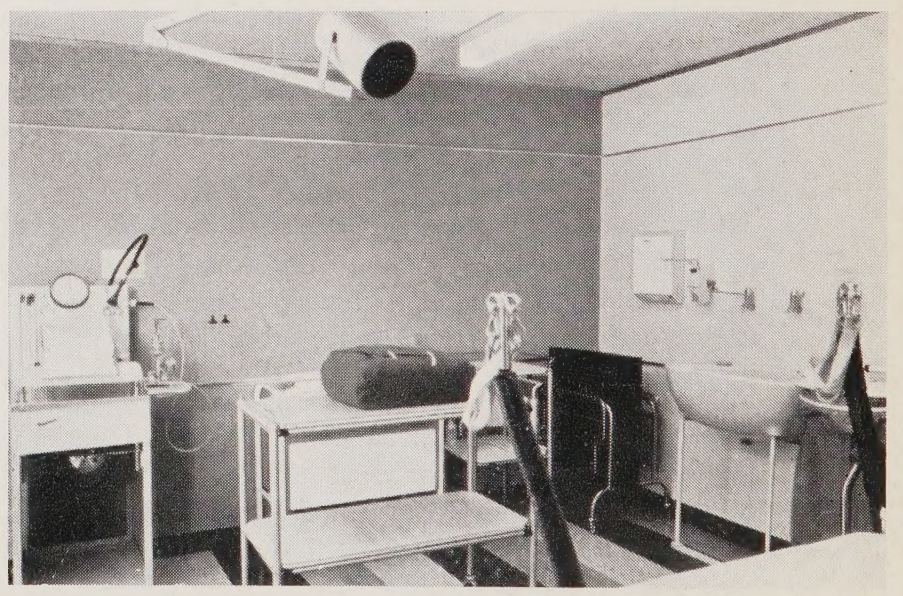
Scottish Home and Health Department. *Bellshill maternity hospital.* Edinburgh, H.M.S.O., 1968. (Hospital design in use, 3.)

Scottish Home and Health Department. *Ward design.* Edinburgh, H.M.S.O., 1964. (Hospital planning note, 1.)









The Centre acknowledges the assistance given by manufacturers who supplied equipment for the mock-up of the CDR